

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

DEPARTMENT OF TRADE AND INDUSTRY
DEPARTEMENT VAN HANDEL EN NYWERHEID

REPUBLIC OF SOUTH AFRICA



REPUBLIEK VAN SUID-AFRIKA

LETTERS PATENT

(PATENTS ACT, 1978)

PATENTBRIEF

(WET OP PATENTE, 1978)

No. 91/7215

WHEREAS
NADEMAAL

WERNER JOSEF BALLER

(Hereinafter called "the Patentee")
(Hieronder "die Patenthouer" genoem)

has applied to me for the grant of a patent in respect of an invention described and claimed in the complete specification deposited at the
aansoek by my gedoen het om die verlening van 'n patent ten opsigte van 'n uitvinding wat beskryf is en waarop aanspraak gemaak word

Patent Office under the above-mentioned number, a copy of which is annexed, together with the relevant Form P. 2;
in die volledige spesifikasie wat by die Patentkantoor onder bovermelde nommer ingedien is en waarvan 'n afskrif aangeheg is tesame met
die betrokke vorm P. 2:

NOW THEREFORE these Letters Patent are to grant to the Patentee a patent, the effect of which shall be to grant to the Patentee
SO IS DIT dat hierdie Patentbrief aan die Patenthouer 'n patent verleen wat die uitwerking het dat, behoudens die bepalings van die
in the Republic, subject to the provisions of the Act, for the duration of the patent, the right to exclude other persons from making, using,
Wet, aan die Patenthouer vir die duur van die patent in die Republiek die reg verleen word om ander persone uit te sluit van die vervaar-

exercising or disposing of the invention, so that he shall have and enjoy the whole profit and advantage accruing by reason of the invention.
diging, aanwending, uitoefening of van die handsetting van die uitvinding, sodat hy al die wins en voordeel wat uit die uitvinding voort-
spruit, verkry en geniet.

IN TESTIMONY WHEREOF the seal of the Patent Office has been affixed at Pretoria with effect from the
TER BETUIGING WAARVAN die seël van die Patentkantoor hierop te Pretoria aangebring is met ingang van die

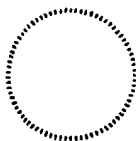
29TH

day of
dag van

APRIL

nineteen hundred and
eenduisend negehoenderd

NINETY-TWO



D P BOUHOFF

Registrar of Patents/Registrateur van Patente

(See overleaf
(Blaai om

This invention relates to a chute.

According to the invention a chute through which material can be transferred is provided, the chute includes an inlet and an outlet for the material with at least one step between the inlet and the outlet, the step in use being covered with a layer of the material upon which layer further material can impinge so that wear of the step is at least reduced.

The step may include a raised formation to facilitate retention of the material on the step. The raised formation may be located towards the free end of the step. Alternatively, the raised formation may be located at the free end of the step. The raised formation may be a lip.

A plurality of steps may be provided between the inlet and the outlet with the free end of each successive step from the top down extending beyond the free end of each preceding step.

The inlet to the chute may include an aperture within a surface which surface at least partly surrounds the aperture so that a layer of the material can form on the surface. The aperture may be at least partly surrounded by a raised formation

to facilitate retention of the layer of the material on the surface.

According to another aspect of the invention a chute through which material can be transferred is provided, the chute includes an inlet and an outlet for the material, the inlet having an aperture in a surface which surface at least partly surrounds the aperture so that a layer of the material can form on the surface upon which layer further material can impinge so that wear of the step is at least reduced.

The aperture may be at least partly surrounded by a raised formation to facilitate retention of the material on the surface.

According to another aspect of the invention a method of reducing the velocity of material discharged through a transfer chute from a first conveyor means onto a second conveyor means includes the step of discharging the material from the first conveyor means onto at least one intermediate surface in the discharge chute from which intermediate surface the material is discharged onto the second conveyor means.

The intermediate surface preferably comprises a

layer of the material. Preferably the material is discharged consecutively onto a plurality of intermediate surfaces.

According to another aspect of the invention a method of reducing wear of a transfer chute through which material is discharged from a first conveyor means onto a second conveyor means includes the step of discharging the material from the first conveyor means onto a layer of the material within the chute from which layer the material is discharged onto the second conveyor means.

The invention will now be described by way of a non-limiting example with reference to the accompanying drawings in which:

figure 1 is a perspective view of a transfer chute located between two conveyor belts;

figure 2 is a cross sectional side view of figure 1; and

figure 3 is an enlarged view of the circled portion marked III on figure II but showing a layer of material on the step.

Referring to the drawings, a chute 10 transfers

material from a conveyor belt 12 onto a conveyor belt 14. The chute 10 has an inlet 16 and an outlet 18. Four steps 20 are interposed between the inlet 16 and the outlet 18.

Each step 20 consists of a substantially U-shaped surface 22 and a raised formation in the form of a lip 24. Each successive step from the top extends beyond the free end of the preceding step.

The inlet 16 to the chute includes an aperture 26 within a plate 28. The aperture 26 is surrounded by a lip 30.

In use of the chute, some of the material from conveyor belt 12 forms a layer 32 on the steps as shown in figure 3. Further material transferred through the chute impinges on the layer 32 as opposed to the step. Thus wear of the step is minimized or eliminated. Furthermore, the layer 32 tends to cover the top of the lip 24 and thus wear of the lip is minimized or eliminated. The material also forms a layer around the aperture 26 which minimizes or eliminates wear of the plate 28.

The chute has the advantage that the velocity of the material passing through the chute is reduced. Thus wear of conveyor belt 14 is reduced and less dust is created within the chute.

It will be appreciated that many modifications or variations of the invention are possible without departing from the spirit or scope of the invention.

1. A chute through which material can be transferred, the chute including an inlet and an outlet for the material with at least one step between the inlet and the outlet, the step in use being covered with a layer of the material upon which layer further material can impinge so that wear of the step is at least reduced.
2. The chute of claim 1 wherein the step includes a raised formation to facilitate retention of the material on the step.
3. The chute of claim 2 wherein the raised formation is located towards the free end of the step.
4. The chute of claim 2 wherein the raised formation is located at the free end of the step.
5. The chute of any of claims 2 to 4 wherein the raised formation is a lip.
6. The chute of any of the above claims including a plurality of steps between the inlet and the outlet with the free end of each successive step from the top down extending beyond the free end of each preceding step.

7. The chute of any of the above claims wherein the inlet to the chute includes an aperture within a surface which surface at least partly surrounds the aperture so that a layer of the material can form on the surface.
8. The chute of claim 7 wherein the aperture is at least partly surrounded by a raised formation to facilitate retention of the layer of the material on the surface.
9. A chute through which material can be transferred, the chute including an inlet and an outlet for the material, the inlet having an aperture in a surface which surface at least partly surrounds the aperture so that a layer of the material can form on the surface upon which layer further material can impinge so that wear of the step is at least reduced.
10. The chute of claim 9 wherein the aperture is at least partly surrounded by a raised formation to facilitate retention of the material on the surface.
11. A chute substantially as herein described and illustrated with reference to the accompanying drawings.

12. A method of reducing the velocity of material discharged through a transfer chute from a first conveyor means onto a second conveyor means including the step of discharging the material from the first conveyor means onto at least one intermediate surface in the discharge chute from which intermediate surface the material is discharged onto the second conveyor means.
13. The method of claim 12 wherein the intermediate surface comprises a layer of the material.
14. The method of claim 12 or claim 13 wherein the material is consecutively discharged onto a plurality of intermediate surfaces.
15. A method of reducing the velocity of material discharged through a transfer chute from a first conveyor means onto a second conveyor means substantially as herein described and illustrated with reference to the accompanying drawings.
16. A method of reducing wear of a transfer chute through which material is discharged from a first conveyor means onto a second conveyor means including the step of discharging the

material from the first conveyor means onto a layer of the material within the chute from which layer the material is discharged onto the second conveyor means.

17. A method of reducing wear of a transfer chute substantially as herein described and illustrated with reference to the accompanying drawings.

Dated this 11th day of September 1991

Patent Attorney  Agent for the Applicant

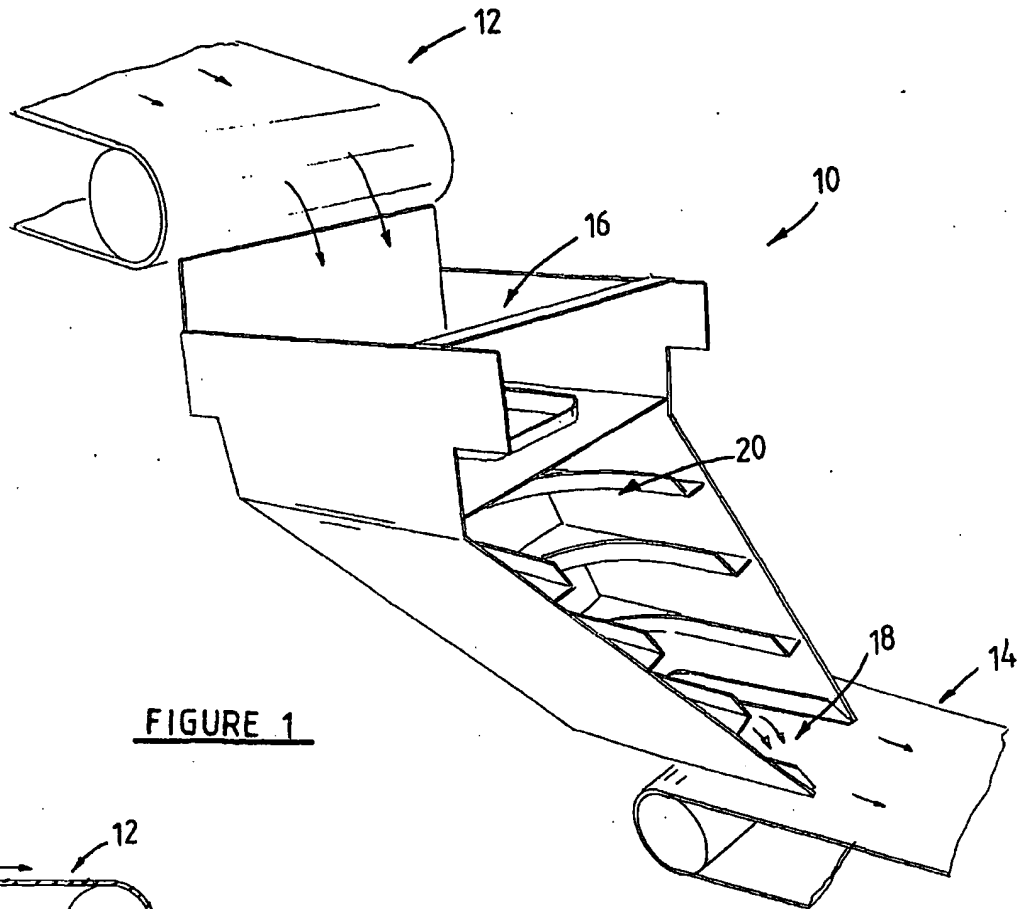


FIGURE 1

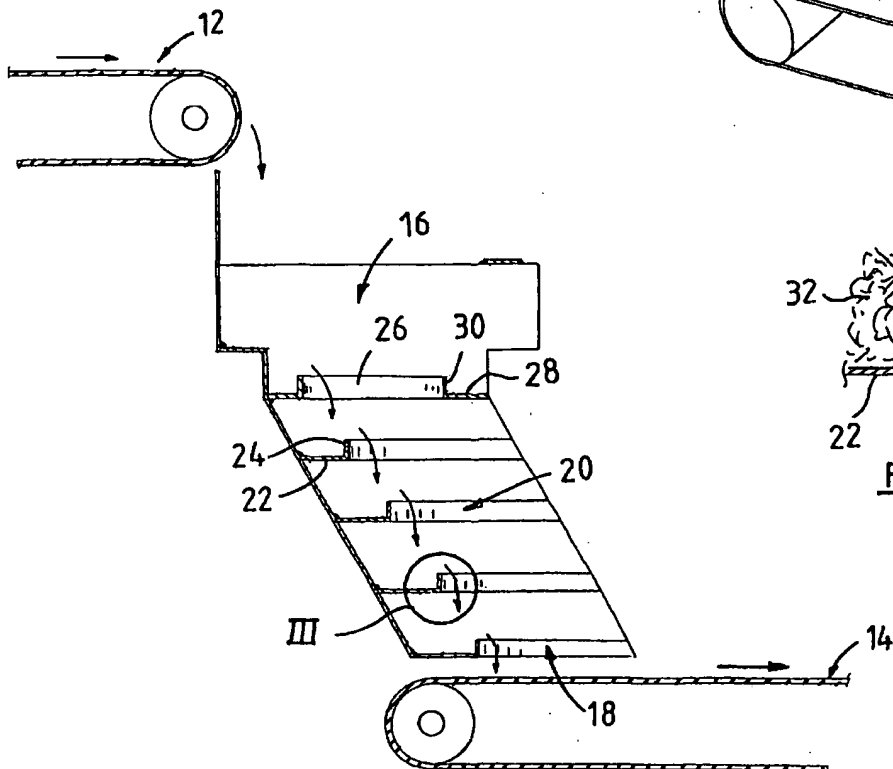


FIGURE 2

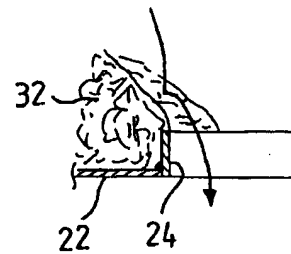


FIGURE 3

REPUBLIC OF SOUTH AFRICA
PATENTS ACT, 1978

PUBLICATION PARTICULARS AND ABSTRACT
(Section 32(3)(a) — Regulations 22(1)(g) and 31

PATENT APPLICATION NO.			LODGING DATE		ACCEPTANCE DATE	
21	01	91/7215	23	11/09/91	43	18-03-1992

INTERNATIONAL CLASSIFICATION		NOT FOR PUBLICATION	
51	B65G	CLASSIFIED BY:	
FULL NAME(S) OF APPLICANT(S)			

71	WERNER JOSEF BALLER
----	---------------------

FULL NAME(S) OF INVENTOR(S)	
72	WERNER JOSEF BALLER

EARLIEST PRIORITY CLAIMED	COUNTRY	NUMBER	DATE			
NOTE: The country must be indicated by its international abbreviation — see schedule 4 of the Regulations	33	ZA	31	90/7236	32	11/09/90

TITLE OF INVENTION	
54	CHUTE

57	ABSTRACT (NOT MORE THAN 150 WORDS)	NUMBER OF SHEETS	12
----	------------------------------------	------------------	----

A chute is provided through which material can be transferred. The chute includes an inlet and an outlet for the material with at least one step between the inlet and the outlet. The step is, in use, covered with a layer of the material upon which layer further material can impinge so that the wear of the step is at least reduced.

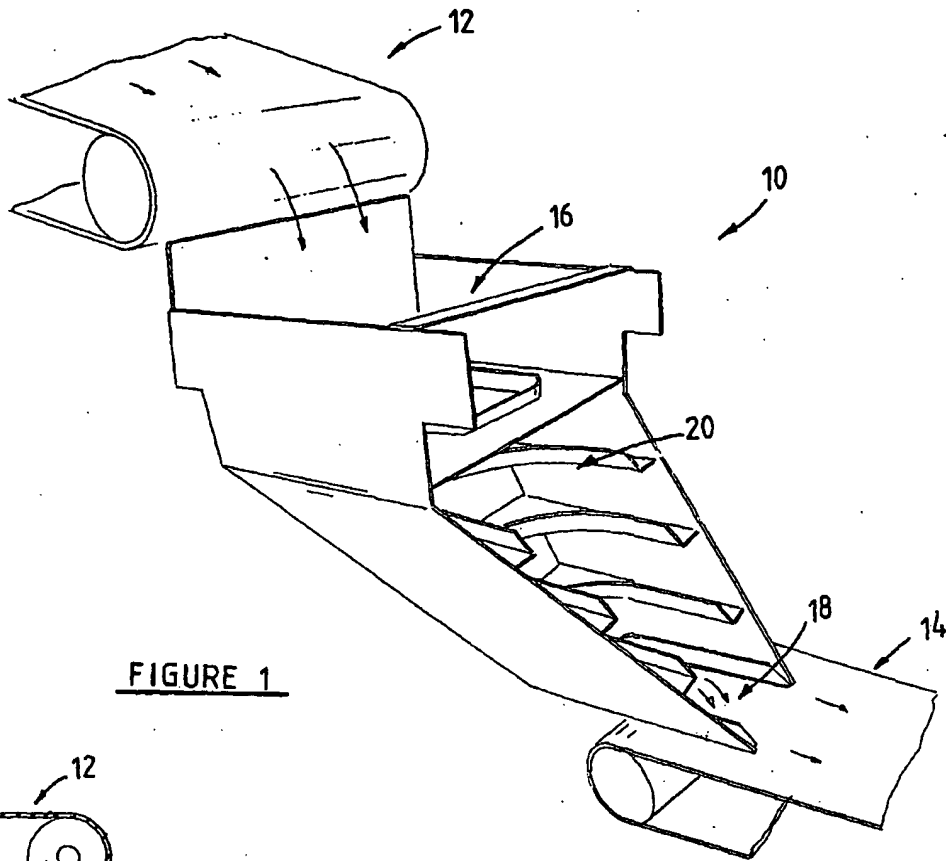


FIGURE 1

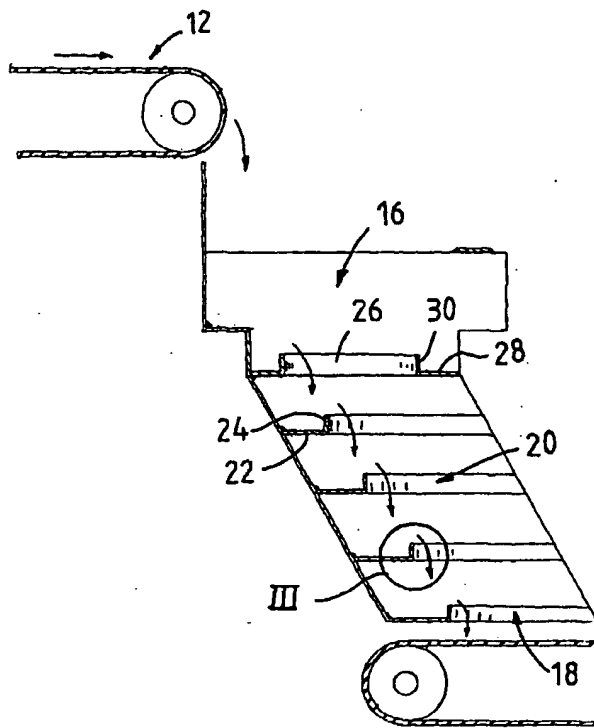


FIGURE 2

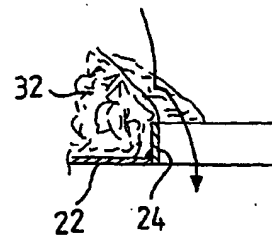


FIGURE 3